

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: TRIVONZI, D Examiner #: 69332 Date: 8/25/05
Art Unit: 1711 Phone Number 30 2-1681 Serial Number: 61777, 896
Mail Box and Bldg/Room Location: 10D71 Results Format Preferred: (circle) PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____
Inventors (please provide full names): _____

Earliest Priority Filing Date: _____

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Formula (1) in claim 7 with $A_1 = \text{Formula (2)}$ and $A_2 = \text{Formula (3)}$
the product body formula (1) derived from Formula (45) + (Formula (46)) in claim 8.

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Ctr.
AUG 25 2005
Pat. & T.M. Office

(NOT MUCH OUT THERE, so $A_1 = A_2 = \text{ANYTHING}$.)

STAFF USE ONLY

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: <u>ES</u>	NA Sequence (#) _____	STN _____
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>9-15-05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: _____	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: _____	Other _____	Other (specify) _____

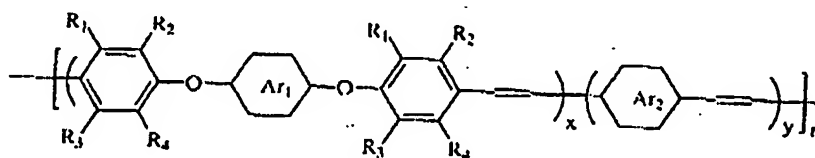
Application No.: 10/777,896

Docket No.: C3540.0001

CLAIM AMENDMENTS

Claims 1 to 6 (Canceled).

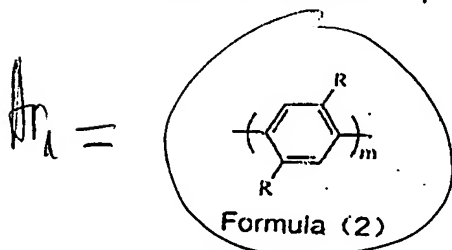
7. (New) An energy-transfer type light-emitting polymer based on poly(p-phenylene vinyl)s, which has the structural unit as represented by the following formula (1):



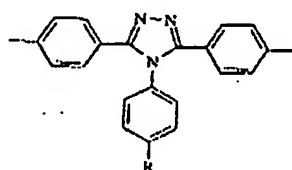
Formula (1)

wherein R_1 , R_2 , R_3 , and R_4 each independently is hydrogen, alkyl, alkoxy, optionally substituted phenyl or naphthyl; x and y each is the content of the luminous element, satisfying $0 < x < 1$, $0 < y < 1$, $x + y = 1$; and $n = 1-200$;

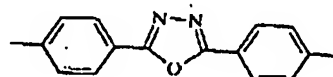
Ar_1 being one or two luminous structural elements selected from a group consisting of formula (2), formula (12), and formula (13), wherein R is hydrogen, alkyl, alkoxy, optionally substituted phenyl or naphthyl; $m = 1-10$;



Formula (2)

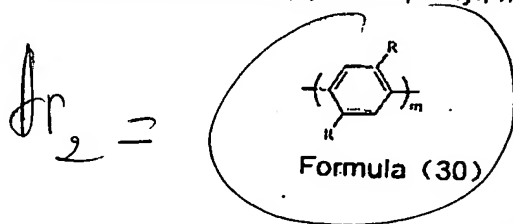


Formula (12)

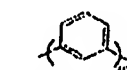


Formula (13)

Ar_2 being one or two luminous structural elements selected from a group consisting of formula (30) and formula (33), wherein R each independently is hydrogen, alkyl, alkoxy, optionally substituted phenyl or naphthyl; $m = 1-10$;



Formula (30)

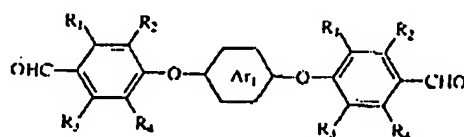


Formula (33)

Application No.: 10/777,896

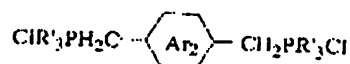
Docket No.: C3540.0001

8. (New) A process for preparing the energy-transfer type poly(p-phenylene vinyl) polymeric luminescent material according to claim 1, comprising the step of copolymerizing at least one Ar₁-containing aromatic dialdehyde monomer represented by general formula (7) and at least one Ar₂-containing aromatic diphosphonium monomer represented by general formula (8) at an equal molar amount,



Formula (45)

wherein R₁, R₂, R₃ and R₄ each independently is hydrogen, alkyl, alkoxy, optionally substituted phenyl or naphthyl; Ar₁ is defined as in above formula (1);



Formula (46)

wherein Ar₂ is defined as in above formula (1); R' is butyl or phenyl.

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      FILE 'LREGISTRY'
L1          STR
L2          STR

      FILE 'REGISTRY'
L3          SCR 2043
L4          0 S L1 AND L2 AND L3
L5          STR L2
L6          0 S L1 AND L5 AND L3

      FILE 'HCAPLUS'
L7          355330 S WANG ?/AU
L8          78636 S SUN ?/AU
L9          52006 S CHENG ?/AU
L10         460 S L7 AND L8 AND L9
L11         23823 S WANG L?/AU
L12         5806 S SUN H?/AU
L13         5657 S CHENG Y?/AU
L14         3 S L11 AND L12 AND L13
           SEL L14 1-3 RN

      FILE 'REGISTRY'
L15         15 S E1-E15
L16         9 S L15 AND PMS/CI
L17         9 S L1 AND L5 AND L3 FUL
           SAV L17 TRU896/A
L18         15 POLYLINK L17

      FILE 'ZCAPLUS'
L19         5 S L18

      FILE 'REGISTRY'

=> d l17 que stat
L1          STR
  
```

OHC~Cb~O~G1~O~Cb~CHO Cy @10
 1 2 3 4 5 6 7

REP G1=(1-8) 10
 NODE ATTRIBUTES:
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 2
 GGCAT IS UNS AT 10
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 8

STEREO ATTRIBUTES: NONE
 L3 SCR 2043
 L5 STR

P~Ak~G1~Ak~P Cy @10
 3 4 5 6 7

REP G1=(1-10) 10
 NODE ATTRIBUTES:
 NSPEC IS RC AT 3
 NSPEC IS RC AT 7
 DEFAULT MLEVEL IS ATOM
 GGCAT IS UNS AT 10
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
 RING(S) ARE ISOLATED OR EMBEDDED
 NUMBER OF NODES IS 6

STEREO ATTRIBUTES: NONE
 L17 9 SEA FILE=REGISTRY SSS FUL L1 AND L5 AND L3

100.0% PROCESSED 5510 ITERATIONS
 SEARCH TIME: 00.00.01

9 ANSWERS

=> file zcaplus
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L19 ANSWER 1 OF 5 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2005:31255 ZCAPLUS
 DN 142:298403
 ED Entered STN: 14 Jan 2005
 TI Synthesis and Photovoltaic Characteristics of Novel Copolymers
 Containing Poly(phenylenevinylene) and Triphenylamine Moieties
 Connected at 1,7 Bay Positions of Perylene Bisimide
 AU Liu, Yang; Yang, Chunhe; Li, Yongjun; Li, Yuliang; Wang, Shu;
 Zhuang, Junpeng; Liu, Huibiao; Wang, Ning; He, Xiaorong; Li,
 Yongfang; Zhu, Daoben
 CS CAS Key Laboratory of Organic Solids Center for Molecular Sciences,
 Institute of Chemistry, Chinese Academy of Sciences, Beijing,
 100080, Peop. Rep. China
 SO Macromolecules (2005), 38(3), 716-721
 CODEN: MAMOBX; ISSN: 0024-9297
 PB American Chemical Society
 DT Journal
 LA English
 CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36, 76
 AB Two novel copolymers contg. PPV and triphenylamine moieties
 connected at 1,7 bay positions of perylene bisimide were
 successfully synthesized by means of the Wittig reaction. Both of
 them were characterized by FT-IR, 1H NMR, UV-vis, and FL spectra as
 well as GPC, TGA, and DSC measurements. The introduction of PPV and
 TPA moieties into the bay positions of perylene bisimide enhanced
 the soly. of polymers and quenched the fluorescence of perylene
 bisimide obviously. The photovoltaic devices
 ITO/PEDOT:PSS/copolymers/Ca/Al were fabricated, and their I-V
 characteristics indicated that the copolymn. in PERY-PPV and
 PERY-PPV-TPA improved the device performance for some extent.
 ST triphenylamine perylenebisimide contg polyphenylenevinylene
 synthesis; thermal optical property photovoltaic device
 polyphenylenevinylene
 IT UV absorption
 (UV-visible; synthesis and photovoltaic characteristics of novel
 copolymers contg. poly(phenylenevinylene) and triphenylamine
 moieties connected at 1,7-positions of perylene bisimide)
 IT Polyamines
 (polyphenylenevinylene-, polyether; synthesis and photovoltaic
 characteristics of novel copolymers contg.
 poly(phenylenevinylene) and triphenylamine moieties connected at

- 1,7-positions of perylene bisimide)
- IT Polyethers, preparation
(polyphenylenevinylene-; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT Poly(arylenealkenylenes)
(polyphenylenevinylenes, polyamine-, polyether; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT Poly(arylenealkenylenes)
(polyphenylenevinylenes, polyether-; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT Electric current
(short-circuit; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT Electric current-potential relationship
- Fluorescence
- Fluorescence quenching
- Glass transition temperature
- Open circuit potential
- Photoelectric devices
- Polymer chains
- Thermal stability
(synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT 847659-75-0P, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylen-3,4,9,10-tetracarboxylic acid bisimide
(monomer, or blend with triphenylamine in photovoltaic cell; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT 603-34-9, Triphenylamine
(photovoltaic characteristics of blend of perylene bisimide with)
- IT 123-08-0, p-Hydroxybenzaldehyde 209111-67-1
(reactant in monomer prepn.; synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)
- IT **847659-76-1P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylen-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide

copolymer **847659-77-2P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylene-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide copolymer, sru **847659-78-3P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylene-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide-triphenylamine dialdehyde copolymer

(synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)

RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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IT **847659-76-1P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylene-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide copolymer **847659-77-2P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylene-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide copolymer, sru **847659-78-3P**, N,N'-Dioctyl-1,7-bis(4-formalphenoxy)perylene-3,4,9,10-tetracarboxylic acid bisimide-1,4-bis(triphenylphosphoniummethyl)-2,5-bis(octyloxy)benzene dibromide-triphenylamine dialdehyde copolymer
(synthesis and photovoltaic characteristics of novel copolymers contg. poly(phenylenevinylene) and triphenylamine moieties connected at 1,7-positions of perylene bisimide)

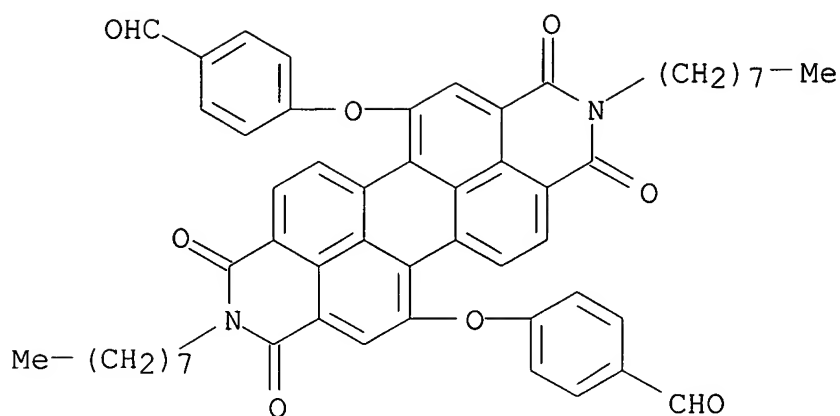
RN 847659-76-1 ZCAPLUS

CN Phosphonium, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[(1,2,3,8,9,10-hexahydro-2,9-dioctyl-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-5,12-diyl)bis(oxy)]bis[benzaldehyde] (9CI)
(CA INDEX NAME)

CM 1

CRN 847659-75-0

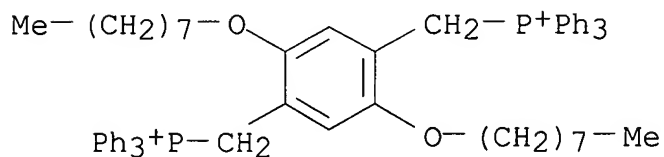
CMF C54 H50 N2 O8



CM 2

CRN 88542-19-2

CMF C60 H70 O2 P2 . 2 Br

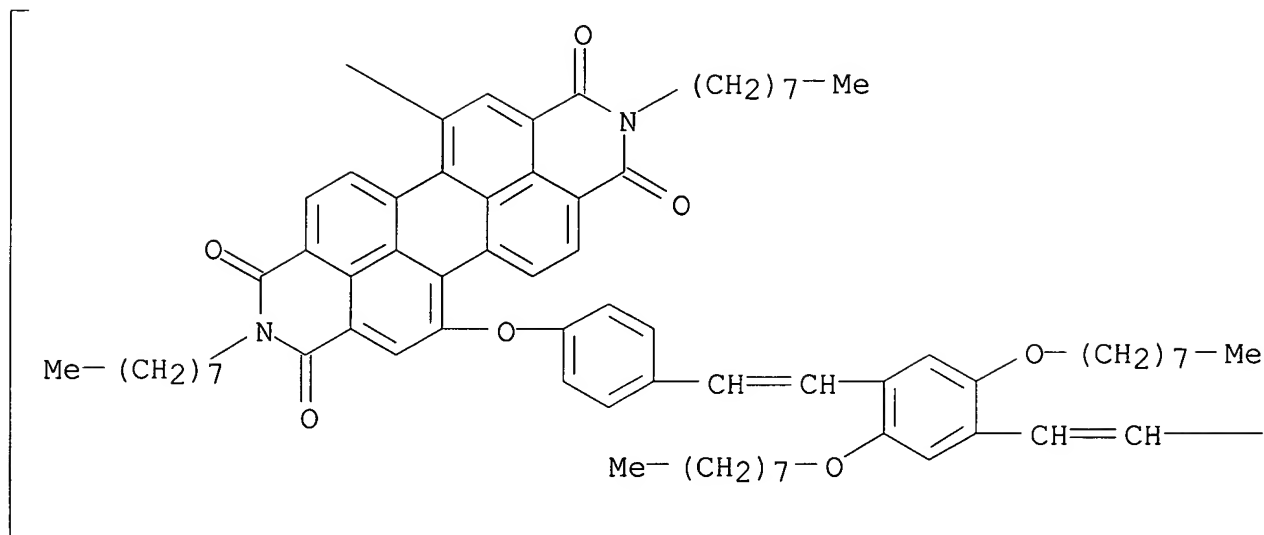


● 2 Br⁻

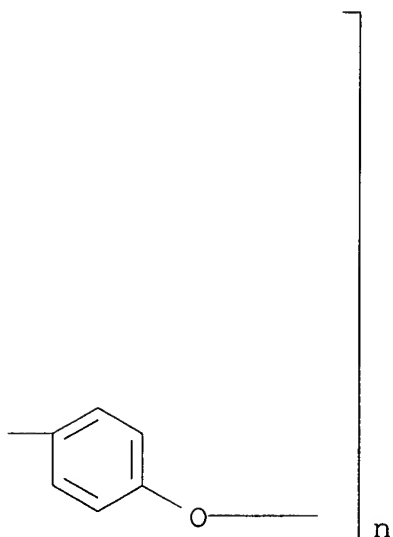
RN 847659-77-2 ZCAPLUS

CN Poly[(1,2,3,8,9,10-hexahydro-2,9-dioctyl-1,3,8,10-tetraoxanthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-5,12-diyl)oxy-1,4-phenylene-1,2-ethenediyl[2,5-bis(octyloxy)-1,4-phenylene]-1,2-ethenediyl-1,4-phenyleneoxy] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



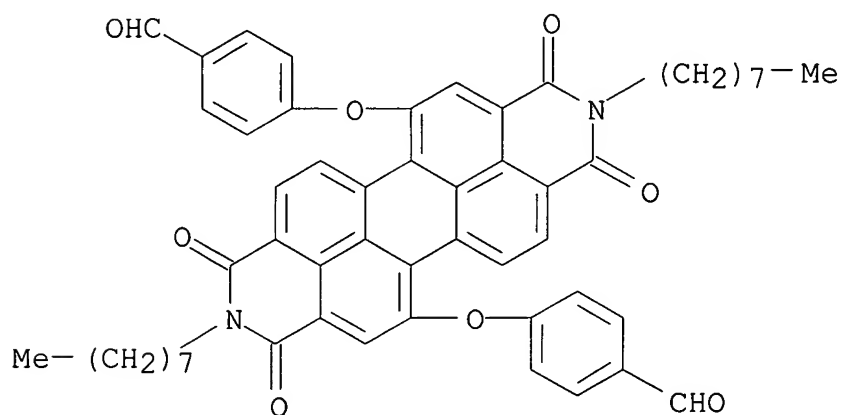
RN	847659-78-3	ZCAPLUS
CN	Phosphonium, [[2,5-bis(octyloxy)-1,4-phenylene]bis(methylene)]bis[triphenyl-, dibromide, polymer with 4,4'-[(1,2,3,8,9,10-hexahydro-2,9-dioctyl-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-	

d'e'f']diisoquinoline-5,12-diyl)bis(oxy)]bis[benzaldehyde] and
4,4'-(phenylimino)bis[benzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 847659-75-0

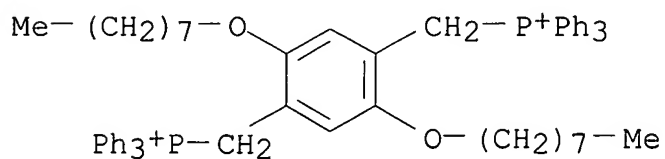
CMF C54 H50 N2 O8



CM 2

CRN 88542-19-2

CMF C60 H70 O2 P2 . 2 Br

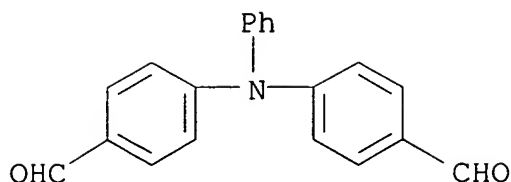


● 2 Br⁻

CM 3

CRN 53566-95-3

CMF C20 H15 N O2



- L19 ANSWER 2 OF 5 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:629294 ZCAPLUS
 DN 137:353438
 ED Entered STN: 21 Aug 2002
 TI Synthesis and characterization of luminescent polyethers with
 2,5-distyrylthiophene and aromatic oxadiazole chromophores
 AU Chen, Yun; Huang, Yu-Yi; Wu, Tzi-Yi
 CS Department of Chemical Engineering, National Cheng Kung University,
 Tainan, 701, Taiwan
 SO Journal of Polymer Science, Part A: Polymer Chemistry (2002),
 40(17), 2927-2936
 CODEN: JPACEC; ISSN: 0887-624X
 PB John Wiley & Sons, Inc.
 DT Journal
 LA English
 CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 73
 AB Two new luminescent copolyethers with isolated 2,5-distyrylthiophene-
 emitting segments and electron-transporting 2,5-diphenyl-1,3,4-
 oxadiazole chromophores were successfully synthesized by the
 Horner-Wadworth-Emmons reaction. The soly., optical, and
 electrochem. properties of the polymers were studied and correlated
 with nonlinear thiophene and 1,3,4-oxadiazole groups. The polyether
 contg. a pendant 1,3,4-oxadiazole group was sol. in common org.
 solvents such as chloroform, THF, and C₂H₂Cl₄. Thermogravimetric
 anal. and differential scanning calorimetry showed that the
 copolyethers were thermally stable below 345.degree., with
 glass-transition temps. higher than 110.degree.. They were
 yellow-greenish emitting materials with a band gap of 2.57-2.58 eV
 estd. from the onset absorption. Incorporating the thiophene moiety
 narrowed the band gaps of the copolyethers. The photophys. and
 electronic properties of the polymer and the preliminary
 electroluminescent device made from the polymer demonstrate that the
 polymer may be a potential candidate material for the fabrication of
 polymeric light-emitting devices.
 ST luminescent polyether distyrylthiophene oxadiazole chromophore;
 polyphenylenevinylene polyoxadiazole polyether luminescent
 IT Polymerization
 (of bis(diethoxyphosphorylmethyl)thiophene with arom.
 dialdehydes; in synthesis of luminescent polyethers with

- distyrylthiophene and arom. oxadiazole chromophores)
- IT Polyoxadiazoles
(polyether-polyphenylenevinylene-, arom.; synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Polyethers, preparation
(polyoxadiazole-polyphenylenevinylene-, arom.; synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Polyethers, preparation
(polyphenylenevinylene-, arom., pendent oxadiazole group-contg.; synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Poly(arylenealkenylenes)
(polyphenylenevinylenes, polyether-, arom., pendent oxadiazole group-contg.; synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Poly(arylenealkenylenes)
(polyphenylenevinylenes, polyether-polyoxadiazole-, arom.; synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Band gap
Electric current-potential relationship
Luminescence
Solubility
UV and visible spectra
(synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT Electroluminescent devices
HOMO (molecular orbital)
LUMO (molecular orbital)
(synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores for use in)
- IT 59311-25-0P, 2,5-Bis(bromomethyl)thiophene
(intermediate; in synthesis of monomer for prepn. of luminescent polyethers with distyrylthiophene and oxadiazole chromophores)
- IT 71702-74-4P
(monomer; for prepn. of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)
- IT 128-08-5, N-Bromosuccinimide 638-02-8, 2,5-Dimethylthiophene
(reactant; in synthesis of monomer for prepn. of luminescent polyethers with distyrylthiophene and oxadiazole chromophores)
- IT **474094-79-6P** 474094-81-0P **474094-82-1P**
474426-84-1P
(synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)

RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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IT **474094-79-6P 474094-82-1P**

(synthesis and characterization of luminescent polyethers with distyrylthiophene and arom. oxadiazole chromophores)

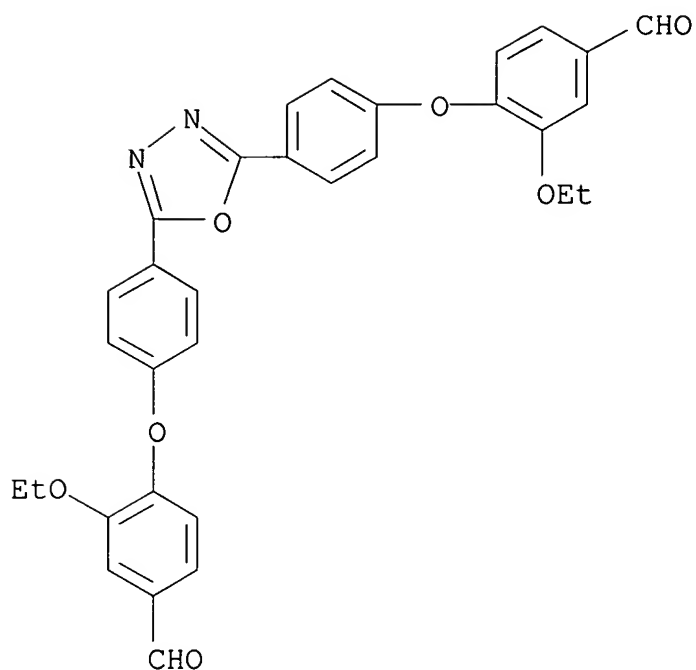
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CN Phosphonic acid, [2,5-thiophenediylbis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[3-ethoxybenzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 404002-58-0

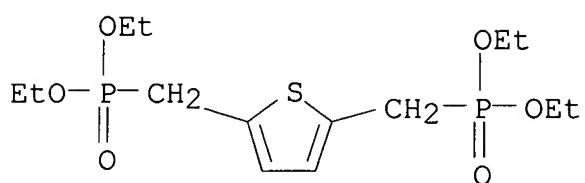
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CM 2

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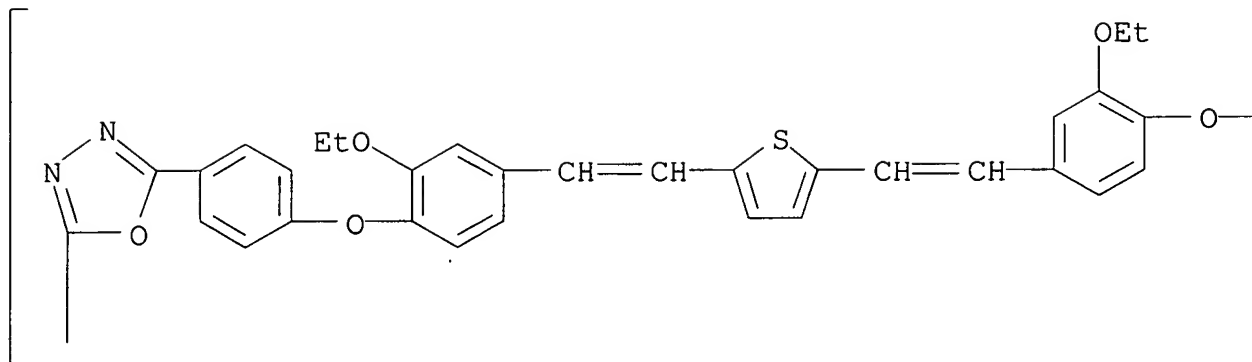
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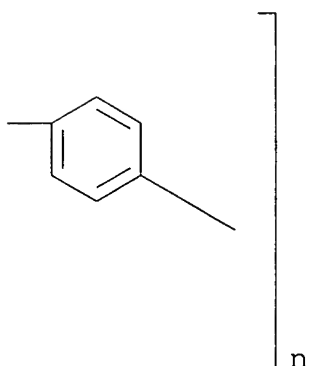
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CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy(2-ethoxy-1,4-phenylene)-1,2-ethenediyl-2,5-thiophenediyl-1,2-ethenediyl(3-ethoxy-1,4-phenylene)oxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L19 ANSWER 3 OF 5 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2002:477781 ZCAPLUS
 DN 137:248050
 ED Entered STN: 26 Jun 2002
 TI Synthesis and characterization of luminescent copolyethers with
 alternate stilbene derivatives and aromatic 1,3,4-oxadiazoles
 AU Chen, Yun; Liao, Chi-Kuei; Wu, Tzi-Yi
 CS Department of Chemical Engineering, National Cheng-Kung University,
 Tainan, 701, Taiwan
 SO Polymer (2002), 43(17), 4545-4555
 CODEN: POLMAG; ISSN: 0032-3861
 PB Elsevier Science Ltd.
 DT Journal
 LA English
 CC 35-5 (Chemistry of Synthetic High Polymers)

- AB New copoly(aryl ether)s contg. alternate emitting stilbene (P1), distyrylbenzene (P2), or distyrylstilbene (P3) chromophores and electron-transporting arom. 1,3,4-oxadiazole groups in the main chain were prep'd. by nucleophilic polycondensation. The copolyethers are basically amorphous materials with decompn. temp. >250.degree.. Introduction of side hexyloxy groups to distyrylbenzene chromophores in P2 significantly enhanced its soly. in common org. solvents such as toluene, THF, and chloroform. UV/visible and fluorescence spectrometers were used to investigate their optical properties both in soln. and in a film state, whereas cyclic voltammograms were used to est. their band diagrams. Photoluminescence maxima of P1, P2 and P3 are 442, 540 and 528 nm, resp. Oxadiazole chromophores in the backbone enhance electron affinity, whereas pendant hexyloxy groups decrease the ionization potential. The threshold voltage and luminance of ITO/P2 (100 nm)/Al single layer device are 17 V and 950 cd/m², resp.
- ST luminescent polyphenylenevinylene polyether polyoxadiazole
- IT Polymerization
(nucleophilic; in synthesis of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)
- IT Polyoxadiazoles
(polyether-, polyphenylenevinylenes; synthesis and characterization of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)
- IT Polyethers, preparation
(polyoxadiazole-, polyphenylenevinylenes; synthesis and characterization of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)
- IT Electroluminescent devices
Electron affinity
HOMO (molecular orbital)
Ionization potential
LUMO (molecular orbital)
Luminescence
Solubility
Thermal stability
UV absorption
(synthesis and characterization of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)
- IT 1588-49-4P, 4,4'-Dimethylstilbene 60682-97-5P,
4,4'-Bis(bromomethyl)stilbene 67399-93-3P, 1,4-
Bis(hexyloxy)benzene 149697-46-1P 153282-57-6P,
1,4-Bis(bromomethyl)-2,5-bis(hexyloxy)benzene 460732-38-1P
460732-39-2P
(intermediate; in synthesis of monomer for prepn. of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)
- IT 69304-88-7P 182500-35-2P 444014-83-9P

(monomer; for prepn. of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)

IT 104-87-0, p-Tolualdehyde 111-25-1, 1-Bromohexane 122-52-1, Triethyl phosphite 123-31-9, Hydroquinone, reactions 128-08-5, N-Bromosuccinimide 302-01-2, Hydrazine, reactions 403-43-0, 4-Fluorobenzoyl chloride 3762-25-2, Diethyl 4-methylbenzylphosphonate 5870-38-2, Diethyl-2,5-dihydroxy terephthalate 30525-89-4, Paraformaldehyde (reactant; in synthesis of monomer for prepn. of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)

IT 460732-41-6P 460732-42-7P **460732-43-8P** **460732-44-9P** 460732-45-0P 460732-46-1P (synthesis and characterization of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD

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IT **460732-43-8P** **460732-44-9P** (synthesis and characterization of luminescent copolyethers with alternate stilbene derivs. and arom. 1,3,4-oxadiazoles)

RN 460732-43-8 ZCAPLUS

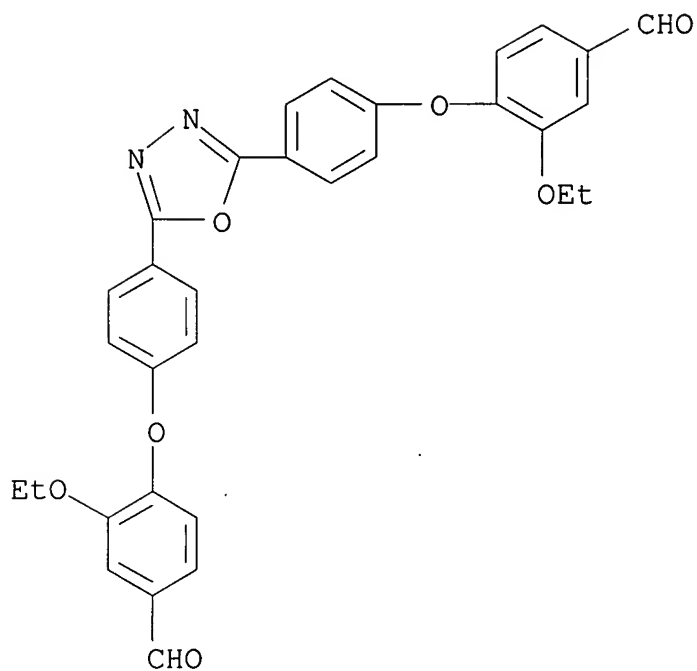
CN Phosphonic acid, [[2,5-bis(hexyloxy)-1,4-phenylene]bis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[3-

ethoxybenzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 404002-58-0

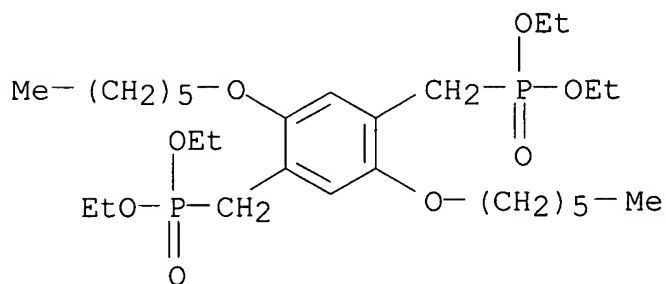
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CM 2

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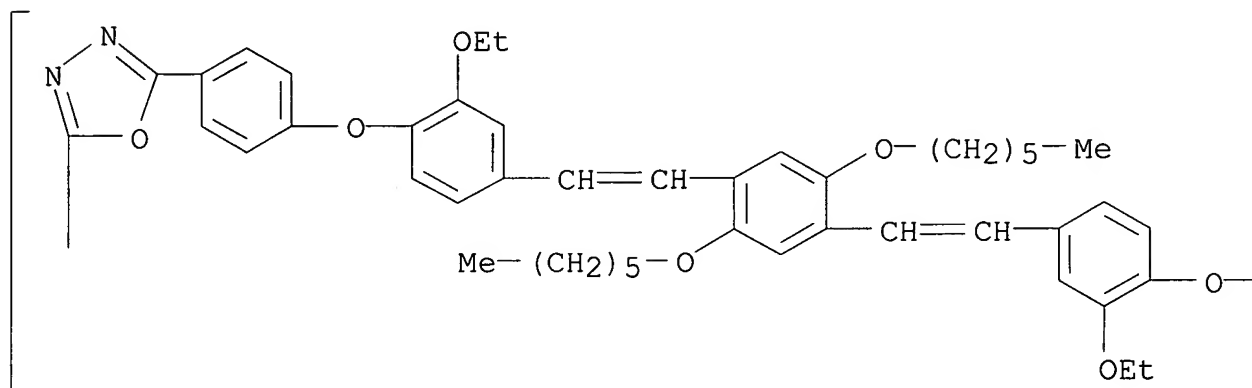
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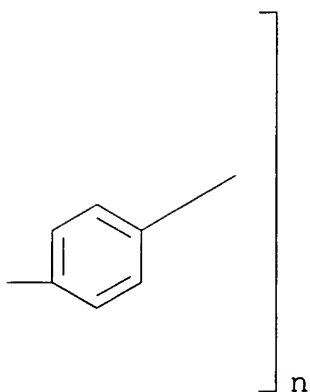
RN 460732-44-9 ZCAPLUS

CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy(2-ethoxy-1,4-phenylene)-1,2-ethenediyl[2,5-bis(hexyloxy)-1,4-phenylene]-1,2-ethenediyl(3-ethoxy-1,4-phenylene)oxy-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L19 ANSWER 4 OF 5 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 2001:910874 ZCAPLUS
 DN 136:247987
 ED Entered STN: 18 Dec 2001
 TI Aromatic polyethers containing distyrylbenzene and 1,3,4-oxadiazole chromophores: synthesis and electrochemical properties
 AU Chen, Yun; Huang, Chih-Feng
 CS Department of Chemical Engineering, National Cheng Kung University,

- Tainan, Taiwan
- SO Synthetic Metals (2001), Volume Date 2002, 125(3), 379-387
CODEN: SYMEDZ; ISSN: 0379-6779
- PB Elsevier Science S.A.
- DT Journal
- LA English
- CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 72, 73
- AB New arom. polyethers (P1, P2) contg. both electron transporting 1,3,4-oxadiazole and emitting distyrylbenzene chromophores were prepd. from 2,5-bis(4-fluorophenyl)-1,3,4-oxadiazole and arom. dialdehydes by Horner-Wadsworth-Emmons reaction. Satd. aliph. segment was also introduced to main chain to improve the soly. of the polyethers (P3, P4). The reduced viscosities are between 0.23 and 0.42 dL/g. They are amorphous and thermally stable up to 300.degree.. In film state, their absorption maxima are in the range of 300-362 nm, while the photoluminescence maxima are within 467-488 nm (blue-green). From cyclic voltammetric and optical investigations, the HOMO and LUMO levels of P1-P4 are estd. to be 5.38-5.47 and 2.55-2.64 eV, resp. The HOMO levels are greater than PPV (5.1 eV), while the LUMO levels are similar to PPV (2.6 eV). Charge injection balance can be improved (compared with PPV) since the difference between barrier heights of anode and cathode is narrowed down.
- ST fluorophenyl oxadiazole arom dialdehyde copolymer prepn elecchem photoluminescence; polyether arom energy level cyclic voltammetric
- IT Poly(arylenealkenylenes)
(arom. polyethers; prepn. and electrochem. and optical properties of arom. polyethers contg. distyrylbenzene and 1,3,4-oxadiazole chromophores)
- IT Polyethers, preparation
(arom., polyphenylenevinylenes; prepn. and electrochem. and optical properties of arom. polyethers contg. distyrylbenzene and 1,3,4-oxadiazole chromophores)
- IT Electric current-potential relationship
Energy level
HOMO (molecular orbital)
LUMO (molecular orbital)
Luminescence
Solubility
Viscosity
(prepn. and electrochem. and optical properties of arom. polyethers contg. distyrylbenzene and 1,3,4-oxadiazole chromophores)
- IT 204185-73-9P 404002-57-9P 404002-58-0P 404002-59-1P
(monomer; prepn. and electrochem. and optical properties of arom. polyethers contg. distyrylbenzene and 1,3,4-oxadiazole chromophores)

IT 456-22-4P 10034-93-2P, Hydrazine sulfate 204185-82-0P
404002-60-4P 404002-61-5P 404002-62-6P
404002-63-7P 404002-64-8P 404002-65-9P
404002-66-0P

(prepn. and electrochem. and optical properties of arom.
polyethers contg. distyrylbenzene and 1,3,4-oxadiazole
chromophores)

IT 123-08-0 134-96-3 3344-70-5
(prepn. and electrochem. and optical properties of arom.
polyethers contg. distyrylbenzene and 1,3,4-oxadiazole
chromophores)

IT 324-81-2P 83072-44-0P
(prepn. and electrochem. and optical properties of arom.
polyethers contg. distyrylbenzene and 1,3,4-oxadiazole
chromophores)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
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IT **404002-60-4P 404002-61-5P 404002-63-7P**
404002-64-8P 404002-65-9P 404002-66-0P
(prepn. and electrochem. and optical properties of arom.
polyethers contg. distyrylbenzene and 1,3,4-oxadiazole
chromophores)

RN 404002-60-4 ZCAPLUS

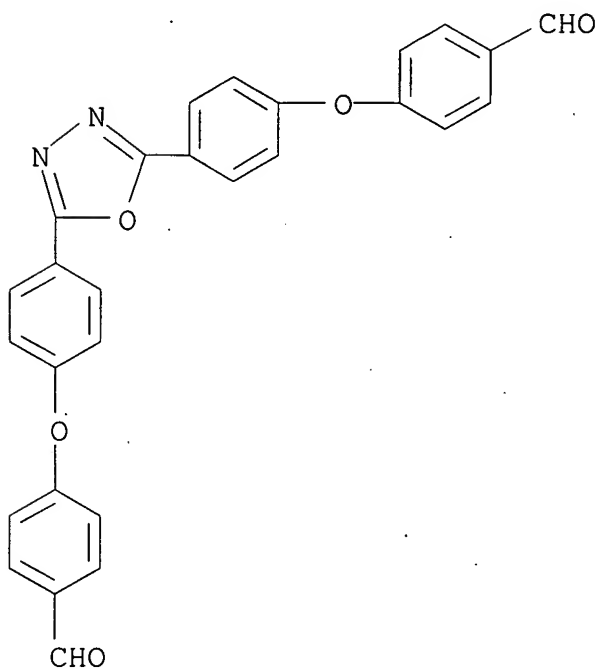
CN Phosphonic acid, [1,4-phenylenebis(methylene)]bis-, tetraethyl

ester, polymer with 4,4'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[benzaldehyde] (9CI) (CA INDEX NAME)

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CRN 404002-57-9

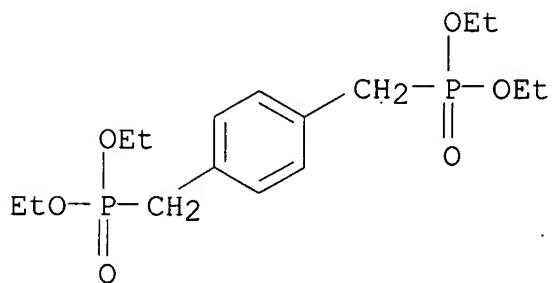
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CM 2

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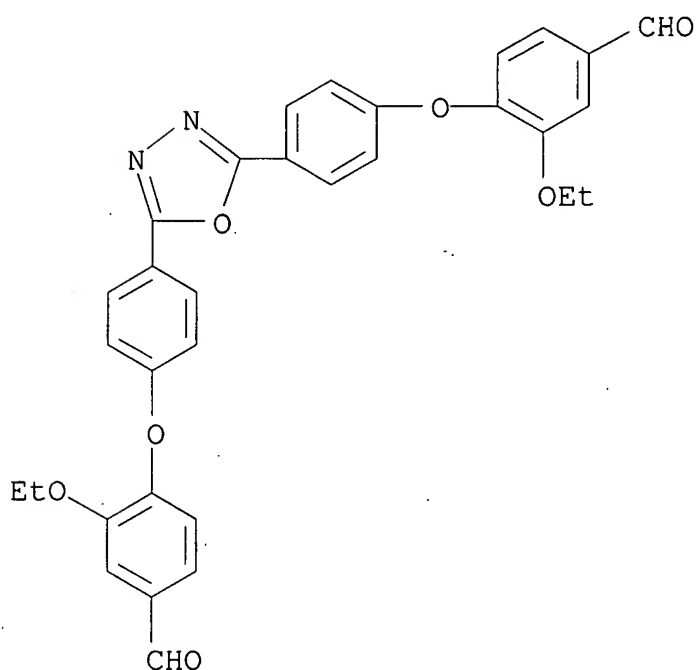
CMF C16 H28 O6 P2



RN 404002-61-5 ZCAPLUS
 CN Phosphonic acid, [1,4-phenylenebis(methylene)]bis-, tetraethyl ester, polymer with 3-ethoxy-4-[4-[5-[2-ethoxy-4-(4-formylphenoxy)phenyl]-1,3,4-oxadiazol-2-yl]phenoxy]benzaldehyde (9CI) (CA INDEX NAME)

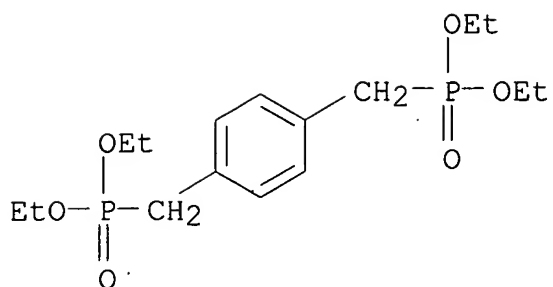
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CRN 404002-58-0
 CMF C32 H26 N2 O7



CM 2

CRN 4546-04-7
 CMF C16 H28 O6 P2



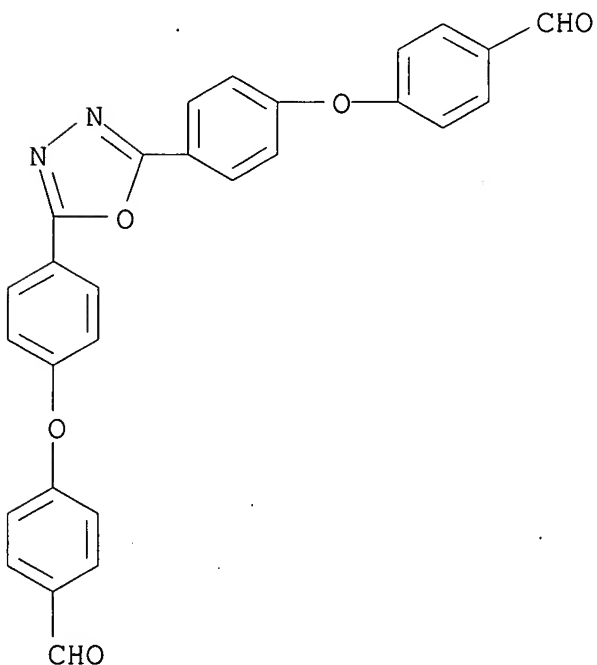
RN 404002-63-7 ZCAPLUS

CN Phosphonic acid, [1,4-phenylenebis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[1,12-dodecanediylbis(oxy)]bis[3,5-dimethoxybenzaldehyde] and 4,4'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[benzaldehyde] (9CI) (CA INDEX NAME)

CM 1

CRN 404002-57-9

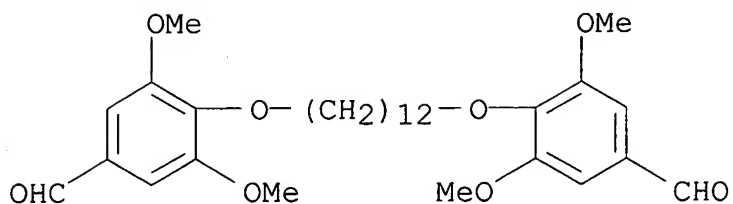
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CM 2

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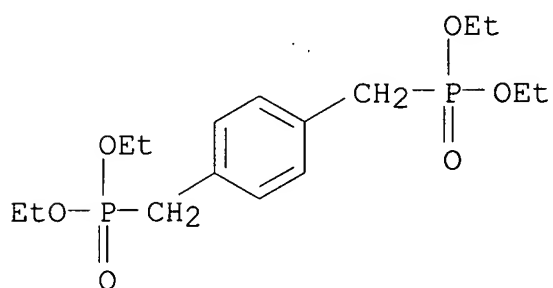
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CM 3

CRN 4546-04-7

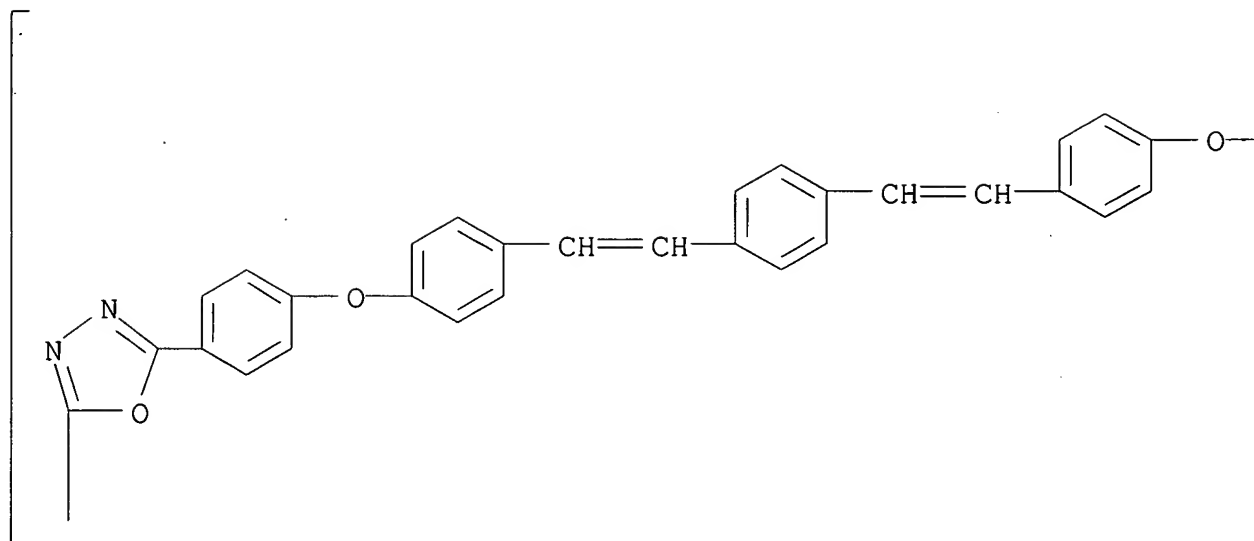
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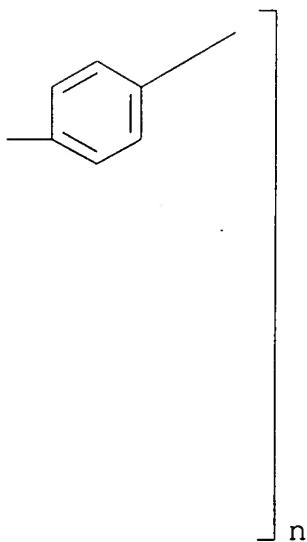
RN 404002-64-8 ZCAPLUS

CN Poly(1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy-1,4-phenylene-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl-1,4-phenyleneoxy-1,4-phenylene) (9CI) (CA INDEX NAME)

PAGE 1-A

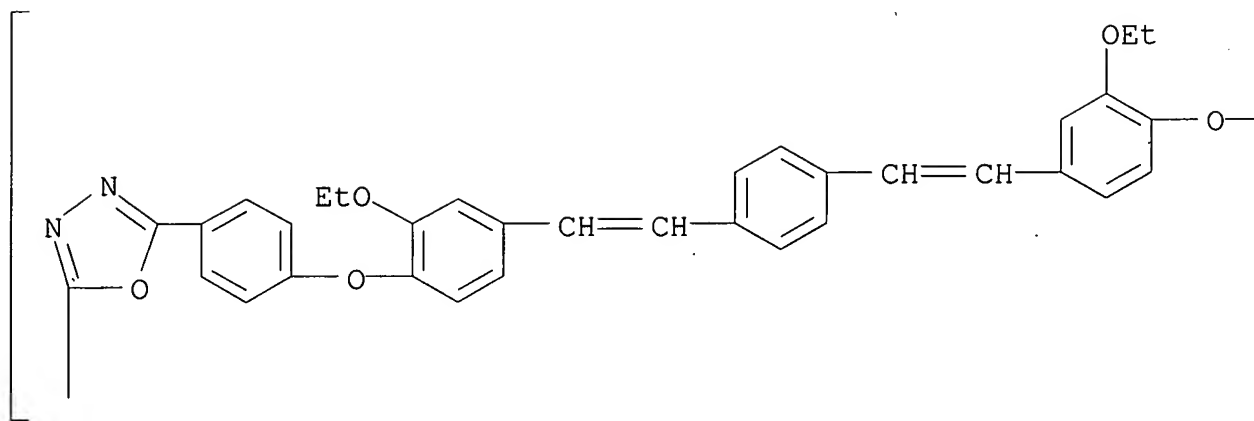


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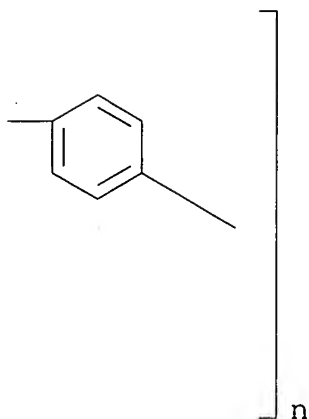


RN 404002-65-9 ZCAPLUS
 CN Poly[1,3,4-oxadiazole-2,5-diyl-1,4-phenyleneoxy(2-ethoxy-1,4-phenylene)-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl(3-ethoxy-1,4-phenylene)oxy-1,4-phenylene] (9CI) (CA INDEX NAME)

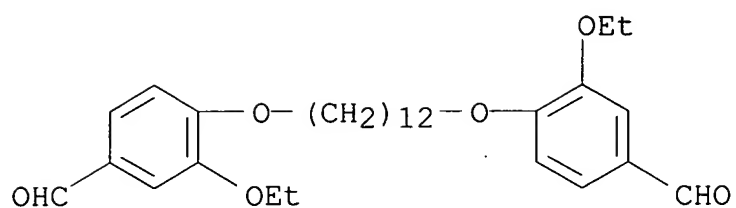
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PAGE 1-B



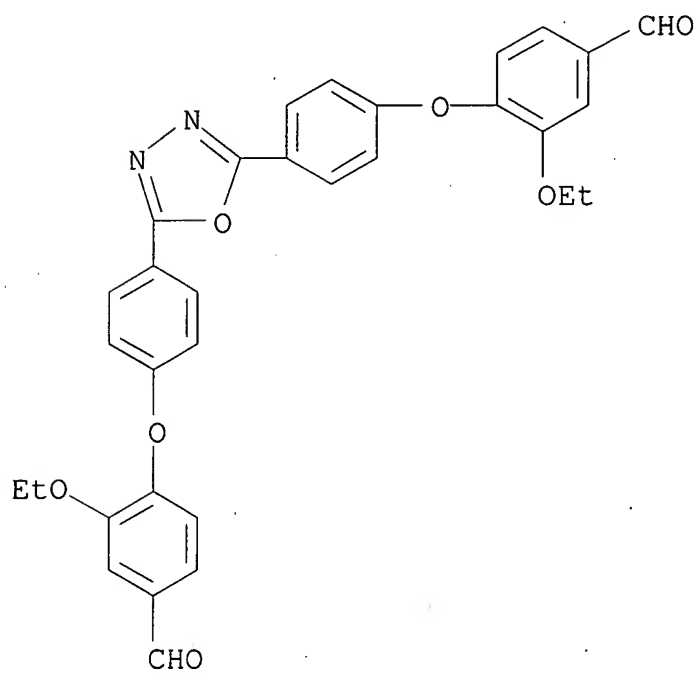
RN 404002-66-0 ZCAPLUS
 CN Phosphonic acid, [1,4-phenylenebis(methylene)]bis-, tetraethyl ester, polymer with 4,4'-[1,12-dodecanediylbis(oxy)]bis[3-ethoxybenzaldehyde] and 4,4'-[1,3,4-oxadiazole-2,5-diylbis(4,1-phenyleneoxy)]bis[3-ethoxybenzaldehyde] (9CI) (CA INDEX NAME)
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 CRN 404002-59-1
 CMF C30 H42 O6



CM 2

CRN 404002-58-0

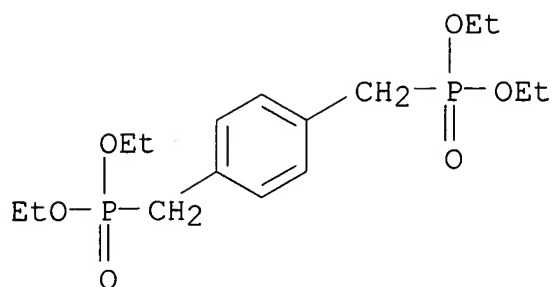
CMF C32 H26 N2 O7



CM 3

CRN 4546-04-7

CMF C16 H28 O6 P2



- L19 ANSWER 5 OF 5 ZCAPLUS COPYRIGHT 2005 ACS on STN
 AN 1998:666051 ZCAPLUS
 DN 129:331117
 ED Entered STN: 21 Oct 1998
 TI Synthesis and characterization of a new polymer containing an
 electron accepting perfluoro group
 AU Jang, Min Sik; Suh, Min Chul; Shim, Sang Chul; Shim, Hong Ku
 CS Dep. Chemistry, Korea Advanced Inst. Sci. Technol., Taejon, 305, S.
 Korea
 SO Macromolecular Chemistry and Physics (1998), 199(10), 2107-2112
 CODEN: MCHPES; ISSN: 1022-1352
 PB Huethig & Wepf Verlag
 DT Journal
 LA English
 CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 36, 73, 74
 AB Poly{oxy-4,4'-octafluorobiphenyleneoxy-alt-[1,4-
 phenylenevinylene(3-trimethylsilyl-1,4-phenylene)vinylene-1,4-
 phenylene]} (PFSi) was synthesized and characterized to investigate
 its thermal, optical, elec., and xerog. properties. An LED (light
 emitting device) using PFSi as the light emitting layer exhibits
 max. emission for blue light, but a high turn-on voltage. The
 origin of the low device performance was examd. by investigating the
 photoconducting behavior. PFSi shows a high photocond. in the
 presence of electron acceptors such as 5-nitroanthranilonitrile, and
 the photocond. of PFSi is improved by introducing charge transport
 materials such as triphenylamine.
 ST electroluminescence photodischarge polyether perfluoro unit LED
 IT Polyethers, preparation
 Polyethers, preparation
 (fluorine-contg., unsatd., electron acceptor-doped; prepn. and
 characterization of polymer contg. an electron accepting
 perfluoro group usable for LED devices)
 IT Fluoropolymers, preparation
 Fluoropolymers, preparation
 (polyether-, unsatd., electron acceptor-doped; prepn. and

characterization of polymer contg. an electron accepting
perfluoro group usable for LED devices)

IT Electroluminescent devices
Luminescence
Luminescence, electroluminescence
(prepn. and characterization of polymer contg. an electron
accepting perfluoro group usable for LED devices)

IT 97-02-9, 2,4-Dinitroaniline 100-01-6, 4-Nitroaniline, uses
4110-35-4, 3,5-Dinitrobenzonitrile 17420-30-3,
5-Nitroanthranilonitrile
(dopant; prepn. and characterization of polymer contg. an
electron accepting perfluoro group usable for LED devices)

IT **214827-84-6P 214975-43-6P**
(electron acceptor-doped; prepn. and characterization of polymer
contg. an electron accepting perfluoro group usable for LED
devices)

IT 161960-62-9P 214827-83-5P
(monomer; prepn. and polymn. of silyl or electron accepting
perfluoro group-contg. monomers)

IT 123-08-0, 4-Hydroxybenzaldehyde 434-90-2, Decafluorobiphenyl
553-94-6, 2-Bromo-p-xylene
(prepn. and polymn. of silyl or electron accepting perfluoro
group-contg. monomers)

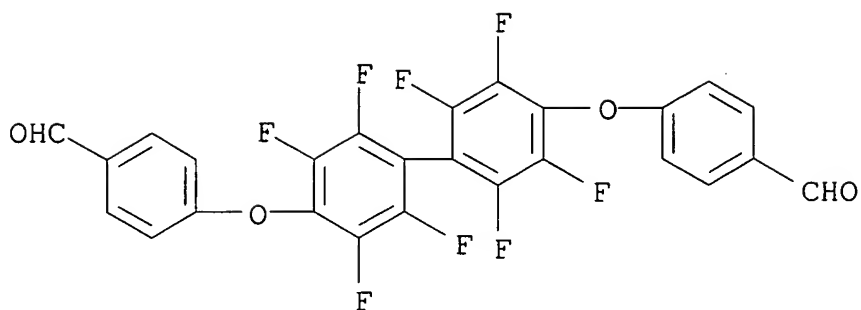
IT 75-77-4P, preparation 17961-81-8P 161960-56-1P
(prepn. and polymn. of silyl or electron accepting perfluoro
group-contg. monomers)

IT **214827-84-6P 214975-43-6P**
(electron acceptor-doped; prepn. and characterization of polymer
contg. an electron accepting perfluoro group usable for LED
devices)

RN 214827-84-6 ZCAPLUS
CN Phosphonium, [[2-(trimethylsilyl)-1,4-phenylene]bis(methylene)]bis[t
riphenyl-, dibromide, polymer with 4,4'-[(2,2',3,3',5,5',6,6'-
octafluoro[1,1'-biphenyl]-4,4'-diyl)bis(oxy)]bis[benzaldehyde] (9CI)
(CA INDEX NAME)

CM 1

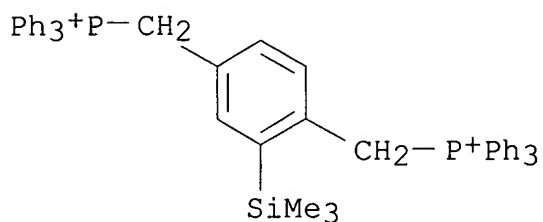
CRN 214827-83-5
CMF C26 H10 F8 O4



CM 2

CRN 161960-62-9

CMF C47 H46 P2 Si . 2 Br



● 2 Br⁻

RN 214975-43-6 ZCAPLUS

CN Poly[oxy(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)oxy-1,4-phenylene-1,2-ethenediyl[(trimethylsilyl)-1,4-phenylene]-1,2-ethenediyl-1,4-phenylene] (9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***